

## ABSTRACT OF THE DISCLOSURE

A jitter measurement method using a down-mixing or down-converting topology in a jitter measurement system preserves the jitter UI rather than the jitter seconds. An input serial data stream at a high baud, after conversion from NRZ to RZ if necessary, is mixed with a stable local oscillator frequency that is close to that of the high baud. The difference between the high baud and the local oscillator frequency is passed by a filter to a clock recovery circuit, to an amplitude modulation removal stage or to a digitizer as a lower rate serial stream. The clock recovery circuit recovers a lower rate clock from the lower rate serial stream upon which the jitter measurement is performed by a jitter measurement stage. The amplitude modulation removal stage converts the lower rate serial stream to a lower rate NRZ signal upon which the jitter measurement is performed directly by the jitter measurement stage or via the clock recover circuit. The digitizer output is processed by a digital signal processor, implementable as a field programmable gate array, to perform algorithms corresponding to the hardware implementation as well as compensating for non-linearities in the down conversion process. The local oscillator and/or IF lowpass filter may be tunable to provide an adjustable baud jitter measurement system at high bauds.

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